Programmable logic relays

Kinco

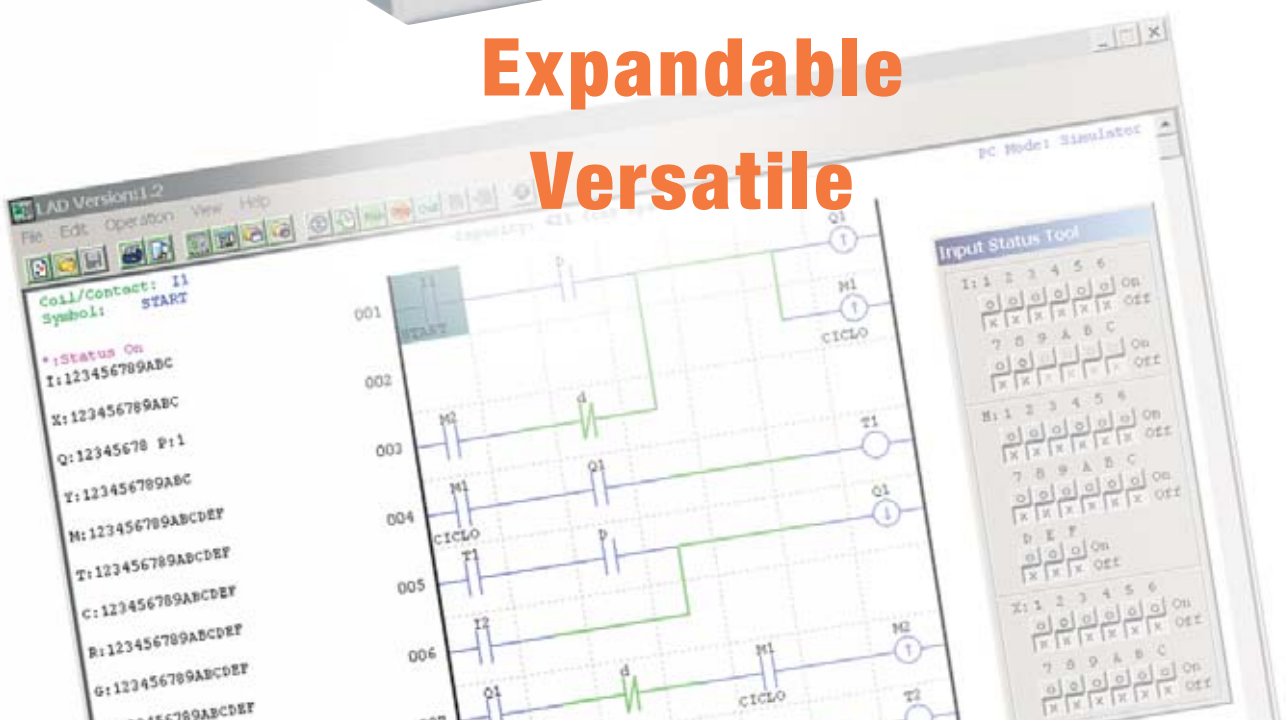
moduLo

Lovato electric

100% electricity

Small
Smart
Simple

Expandable
Versatile



Programmable logic relays

Kinco

moduLo, LOVATO Electric system of modular components, has been still more enhanced with the introduction of Kinco: a programmable logic relay, compact in size yet with excellent performance, suitable for the control and supervision of low and medium complexity automatisms.

Due to the multiplicity of functions, Kinco can efficiently be used in diverse fields of industrial, service and residential applications.

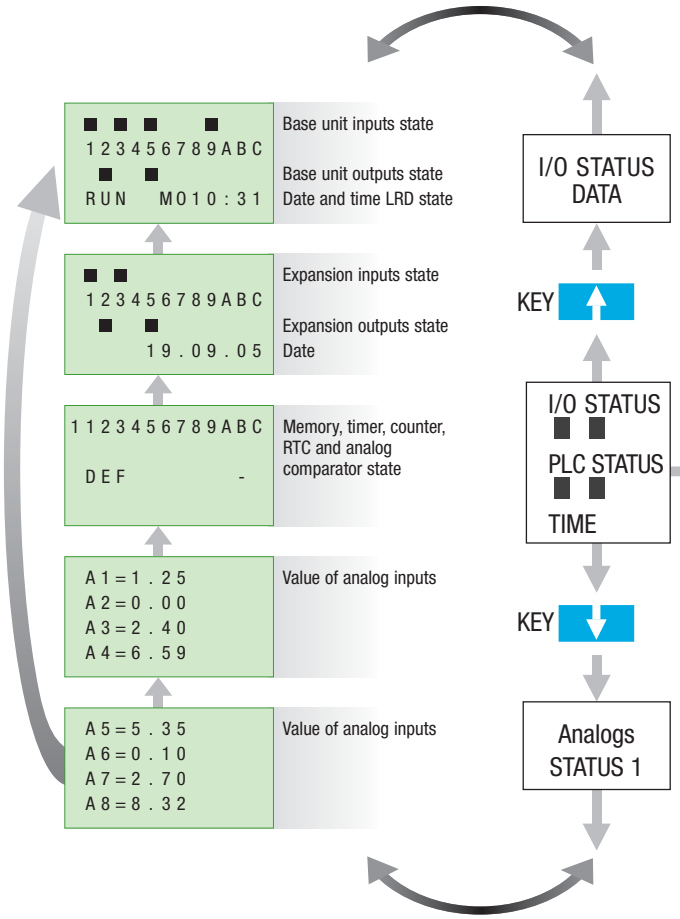
Packaging machines, industrial dishwashers, lighting installations, irrigation systems, garbage disposal machinery, door and gate controls are just a few examples of where Kinco can be used.

Lovato electric

Programming

At any time and with extreme simplicity, Kinco can be set up and reprogrammed to satisfy new requirements and improve the operation of a system.

Programming is simple and intuitive and can be done directly on the relay keypad or by personal computer, connected by LRX C00 interface and using the relative LRX SW software.


1 2 3 4 5 6 7 8 9 A B C
RUN M0 1 0 : 3 1
Base unit inputs state
Base unit outputs state
Date and time LRD state
1 2 3 4 5 6 7 8 9 A B C
1 9 . 0 9 . 0 5
Expansion inputs state
Expansion outputs state
Date
1 1 2 3 4 5 6 7 8 9 A B C
D E F -
Memory, timer, counter, RTC and analog comparator state
A 1 = 1 . 2 5
A 2 = 0 . 0 0
A 3 = 2 . 4 0
A 4 = 6 . 5 9
Value of analog inputs
A 5 = 5 . 3 5
A 6 = 0 . 1 0
A 7 = 2 . 7 0
A 8 = 8 . 3 2
Value of analog inputs
I/O STATUS DATA
KEY
I/O STATUS
PLC STATUS
TIME
KEY
Analogs STATUS 1
KEY
ESC

MENU

LADDER	1	SET	7
FBD	2	RTC SET	8
RUN	3	ANALOG SET	9
CLEAR PROG.	4	PASSWORD	10
WRITE	5	LANGUAGE	11
READ	6	INITIAL	12

1
```
I1 ]M1----(Q1
I2 ]
Q1-m1----(T1
```

2
```
1 ( 1 )
  ( 10.00 )--T1
```

3
```
RUN PROG.

>YES
 NO
```

4
```
CLEAR PROG.

>YES
 NO
```

5
```
WRITE

>YES
 NO
```

6
```
READ

>YES
 NO
```

7
```
ID SET        01
REMOTE I\O    N
BACKLIGHT     x
M KEEP        √
I\O NUMBER:0
I\O ALARM:    √
C KEEP        x
```

8
```
RTC SET V1.4
 05.09.19
MO 13:43
```

9
```
A1=GAIN:010
 OFFSET:+00
A2=GAIN:010
 OFFSET:+00
A3=GAIN:010
 OFFSET:+00
A4=GAIN:010
 OFFSET:+00
```

10
```
PASSWORD      x
     0000
```

11
```
ENGLISH
FRANCAIS
ESPANOL
ITALIANO
DEUTCH
PORTUGUES
CHINESE
```

12
```
INITIAL

>LADDER
 FBD
```

Programming Kinco with **the keypad** is quite simple and straight forward, without particular programming knowledge. There are 8 function keys on the relay front, dedicated to on-board adjustment, control and supervision of digital input and output status, analog input values, time and date entry and the operation status of the relay itself.

Programming sequences are shown on a backlit 4-line 12-character display.

When using a **Personal Computer** (PC), two common language logics are available for programming:

Function Block Diagram (FBD) and LADDER (contact scheme).

Using the Simulator option, the user can control the exactness of the implemented program in off-line simulation, directly on the PC, before the on-line testing and the system set-up.

Lovato electric

Kinco

Small relay
Exceptional performance

Applications

Residential and home automation

- Lighting
- Alarm and fire systems
- Garden irrigation and pool filling systems
- Heating and air-conditioning control
- Shutter and roller shutter control.

Industrial buildings

- Automatic door, gate or window opening and closing
- Boiler and heating control
- Ventilation and air conditioning
- Alarm and fire systems
- Lighting.

Industrial machinery

- Compressor, motor, pump control
- Industrial washing machines
- Mixers and blenders
- Garbage shedders and compactors
- Car washing systems
- Bending machines
- Welding machines.

Cold storage and refrigeration

- Timers
- Temperature control
- Humidity and ventilation control
- Compressor control.

Main features

- Available power supply: 24VDC or 24VAC or 100-240VAC units
- 10, 12 and 20 input-output base units
- Expansion models with 4 inputs and 4 outputs
- Maximum configuration: 44 inputs/outputs
- 8A Ith current relay outputs for AC and DC versions
- 0.3A 24VDC transistor outputs for DC version
- 0-10V analog inputs for DC version
- Standard-supplied Real Time Clock (RTC)
- RS232 serial interface port for PC or program back-up memory connection
- 4-line 12-character display with backlight
- Programming language logics: Ladder (200 lines maximum) or FBD (99 blocks maximum)
- On-board programming languages: Italian, English, Spanish, French, German, Portuguese and Chinese
- PC programming languages: Italian, English and Spanish
- Modular housing with 35mm DIN rail mount or screw fixing on mounting plate.

Accessories and communication module

- The LRX 1V3 D024 power supply produces a direct-current voltage to power the Kinco base and expansion modules in circumstances when 24VDC is not available in the application. The power supply can also be used to power eventual 24VDC auxiliary circuits.

Kinco combines the facility of numerous traditional devices, such as controls relays, timers, counters, hour meters and so on.
The advantages are many: cost reduction of materials and installation time, space reduction, easy reprogramming when needed, and function adjustment of the system for relay adaptation to new installation requirements.

Kinco is available for 24VDC or 24VAC or 100-240VAC power supply and with 10 to 44 inputs and outputs.

Applications

Conveying and transfer systems

- Conveyor belts
- Stop and go controls
- Automatic programmed stopping
- Luggage belts
- Storage and car silos.

Level and pressure control

- Automatic valve opening and closing control
- Level controls
- Pressure controls
- Pump change
- Storage silo and tank filling and draining.

Greenhouses

- Lighting
- Temperature control
- Humidity control
- Irrigation
- Sprinkling systems.

Lifting mechanisms

- Bridge crane control
- Roadway barriers and gates
- Automatic car garages
- Platforms
- Hoists and lifts.

- The LRX M00 backup memory consents to save the user's program and to simply and quickly transfer it to other Kinco base modules.
- The LRE P00 expansion implements communications using Modbus® protocol.

Expansion modules

Kinco can be easily adapted to every type of need. The number of inputs and outputs of the base relay unit can be directly increased by using the expansion modules.
Supplied in three base units with 10, 12 or 20 inputs/outputs, Kinco can be expanded mounting up to 3 expansion modules, to obtain a maximum configuration of 44 inputs/outputs.

Kinco	Expansions	Inputs/Outputs
LRD10...		10 (6 Inputs + 4 Outputs)
	+ LRE08	18 (10 Inputs + 8 Outputs)
	+ LRE08 + LRE08	26 (14 Inputs + 12 Outputs)
	+ LRE08 + LRE08 + LRE08	34 (18 Inputs + 16 Outputs)
LRD12...		12 (8 Inputs + 4 Outputs)
	+ LRE08	20 (12 Inputs + 8 Outputs)
	+ LRE08 + LRE08	28 (16 Inputs + 12 Outputs)
	+ LRE08 + LRE08 + LRE08	36 (20 Inputs + 16 Outputs)
LRD20...		20 (12 Inputs + 8 Outputs)
	+ LRE08	28 (16 Inputs + 12 Outputs)
	+ LRE08 + LRE08	36 (20 Inputs + 16 Outputs)
	+ LRE08 + LRE08 + LRE08	44 (24 Inputs + 20 Outputs)

How to order

Order code	Power supply	INPUTS		Digital OUTPUTS		RTC
		Digital	Digital/Analog (0-10VDC) ❶			
		Total n°	n°	n°	Type	
Base relay unit						
LRD12R D024	24VDC	6	2	4	Relay	Yes
LRD12T D024	24VDC	6	2	4	Transistor	Yes
LRD20R D024	24VDC	8	4	8	Relay	Yes
LRD20T D024	24VDC	8	4	8	Transistor	Yes
LRD12R A024	24VAC	8	0	4	Relay	Yes
LRD20R A024	24VAC	12	0	8	Relay	Yes
LRD10R A240	100-240VAC	6	0	4	Relay	Yes
LRD20R A240	100-240VAC	12	0	8	Relay	Yes
Expansion and communication modules						
LRE08R D024	24VDC	4	0	4	Relay	No
LRE08T D024	24VDC	4	0	4	Transistor	No
LRE08R A024	24VAC	4	0	4	Relay	No
LRE08R A240	100-240VAC	4	0	4	Relay	No
LRE P00	Modbus® protocol communication unit					
Accessories						
LRX M00	Program backup memory					
LRX C00	PC-LRD connecting cable, 1.5m long					
LRX SW	Programming and supervision software (cd-rom)					
LRX 1V3 D024	Power supply unit, 100-240VAC/24VDC, 1.3A					
LRX D00	User's manual Italian edition (paper)					
LRX D01	User's manual English edition (paper)					
LRX D02	User's manual Spanish edition (paper)					
Starter kits						
LRDKIT 12R D024	LRD starter kit complete with LRD12R D024 relay, LRX SW software and LRX C00 cable					
LRDKIT 12R A024	LRD starter kit complete with LRD12R A024 relay, LRX SW software and LRX C00 cable					
LRDKIT 10R A240	LRD starter kit complete with LRD10R A240 relay, LRX SW software and LRX C00 cable					

Technical characteristics

Power supply		**LRD…D024**	**LRD…A024**	**LRD…A240**
Rated utilisation voltage Ue (Frequency range)		24VDC	24VAC	100-240VAC (50-60Hz)
Operating limits		21.6-26.4VDC	-	85-264VAC
Digital inputs				
Rated voltage		24VDC	24VAC	110-220VAC
Input voltage	State 0	< 5VDC / < 0.625mA	❷	< 40VAC / < 0.28mA (LRD10R A240) < 0.15mA (LRD20R A240)
	State 1	> 15VDC / > 1.875mA	❷	> 79VAC / > 0.41mA
Delay time	0 to 1	3-5ms	❷	45-50ms (Ue=100VAC) – 18-22ms (Ue=240VAC)
	1 to 0	3-5ms	❷	45-50ms (Ue=100VAC) – 85-90ms (Ue=240VAC)
Analog inputs for 24VDC version only				
Input signal range		0-10V	-	-
Display resolution		0.01V	-	-
Conversion		10bit	-	-
Current consumption at 10VDC		< 0.17mA	-	-
Input impedance		< 1kΩ	-	-
Admissible overload		28VDC	-	-
Sampling time		5-20ms for LADDER; 2-10ms for FBD		
Maximum cable length		≤ 30m of screened type	-	-
Digital outputs		**LRD…R… / LRE08R…**		**LRD…T… / LRE08T…**
Type of output / Rated current Ith		Relay / 8A		Transistor / 0.3A 24VDC
Applied voltage		12-240VAC / 12-125VDC		21.6-26.4VDC
Ambient conditions				
Operating / Storage temperature		-20…+55°C / -40…+70°C		
Relative humidity		20-90%, without condensation		
Maximum pollution degree		2		
Housing				
Version		Modular for mounting on 35mm DIN rail (IEC/EN 60715) or M4x15mm screw fixing		
Connections	Type of terminal	Screw		
	Conductor section	0.75-3.5mm²/ 12 AWG		
	Tightening torque	0.4-0.6Nm/0.3-0.4lbft		
	Maximum cable length	≤ 100m		
Dimensions (wxhxd)	LRD10… / LRD12…	72x106x57.3mm		
	LRD20…	126x106x57.3mm		
	Expansions LRE…	38x106x57.3mm		
Degree of protection		IP20		
Certfications and compliance				
		Certfications obtained: cULus; compliant with standards: IEC/EN 61131-2		

❶ Digital inputs can be used as analog inputs.

❷ Contact our Customer Service (Tel. +39 035 4282422) for details.

new
2007

Orange

Contactors

Orange

Electromechanical starters

Prewired limit switches type KP...

Micro switches type KS...

Level control relays

Digital ammeter and voltmeter
type DMK0... and DMK1...

moduLo

Digital ammeter and voltmeter
type DMK7... and DMK8...

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Planet-SWITCH

- Motor protection circuit breakers
- Switch disconnectors
- Contactors
- Motor protection relays
- Electromechanical starters
- Push buttons and selectors
- Limit, micro and foot switches
- Rotary cam switches

Planet-DIN

- Modular contactors
- Time relays
- Protection relays
- Level control relays
- Earth leakage relays

Planet-LOGIC

- Digital metering instruments and current transformers
- Soft starters
- AC motor drives
- Automatic power factor controllers
- Automatic battery chargers
- Automatic transfer switch controllers
- Programmable logic relays

The products described in this publication are subject to be revised or improved at any moment.
Catalogue descriptions and details, such as technical and operational data, drawings, diagrams and instructions, etc., do not have any contractual value. In addition, products should be installed and used by qualified personnel and in compliance with the regulations in force for electrical systems in order to avoid damages and safety hazards.

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